Area of rectangles and parallelograms

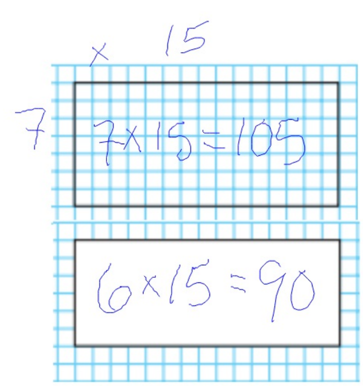
05/09/18

IWBAT develop the concept of area, derive formulas for the area of rectangles and parallelograms, and apply these formulas to solve problems.

Area of rectangles and parallelograms

Rectangle Area Conjecture

The area of a rectangle is given by the formula A = b * h, where A is the area, b is the length of the base, and h is the height of the rectangle.



IWBAT develop the concept of area, derive formulas for the area of rectangles and parallelograms, and apply these formulas to solve problems.

Area of rectangles and parallelograms

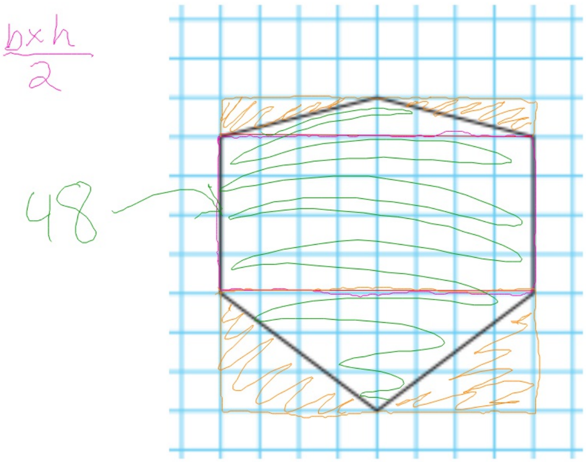
Find the area of this shape.

$\triangle \ (8 \cdot 1)/2 = 4$ $\qquad \Delta \ \frac{b \times h}{2}$

$\square \ 8 \times 4 = 32$

$\bigtriangledown \ \frac{8 \cdot 3}{2} = 12 \ +$

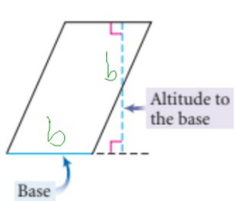
$\overline{\quad 48 \quad}$



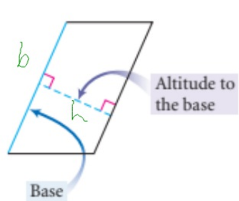
IWBAT develop the concept of area, derive formulas for the area of rectangles and parallelograms, and apply these formulas to solve problems.

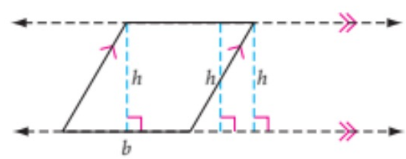
Area of rectangles and parallelograms

Just as with a rectangle, any side of a parallelogram can be called a base. But the height of a parallelogram is not necessarily the length of a side. An altitude is any segment from one side of a parallelogram perpendicular to a line through the opposite side. The length of the altitude is the height. The altitude can be inside or outside the parallelogram. No matter where you draw the altitude to a base, its height should be the same, because the opposite sides are parallel.



or





IWBAT develop the concept of area, derive formulas for the area of rectangles and parallelograms, and apply these formulas to solve problems.

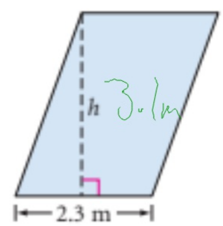
Area of rectangles and parallelograms

Perform the Investigate on page 412 and complete this conjecture:

Parallelogram Area Conjecture

The area of a parallelogram is given by the formula $A = b \cdot h$, where A is the area, b is the length of the base, and h is the height of the parallelogram.

Find the height of a parallelogram that has area 7.13 m^2 and base length 2.3 m.



$$\frac{\cancel{2.3m} \cdot h}{\cancel{2.3m}} = \frac{7.13m^{\cancel{2}}}{2.3\cancel{m}}$$

$$h = 3.1\ m$$

IWBAT develop the concept of area, derive formulas for the area of rectangles and parallelograms, and apply these formulas to solve problems.

Area of rectangles and parallelograms

Pg. 413 #1, 6, 7, 9, 15, 20

IWBAT develop the concept of area, derive formulas for the area of rectangles and parallelograms, and apply these formulas to solve problems.

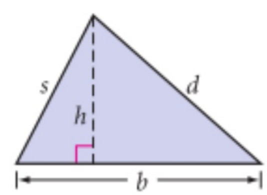
Area of triangles, trapezoids, & kites

05/10/18

IWBAT derive formulas for the areas of triangles, trapezoids, and kites and apply these formulas to solve problems.

Area of triangles, trapezoids, & kites

1. Cut out a pair of congruent triangles and label their parts as shown here.
2. Arrange the triangles to form a figure for which you already have an area formula. Calculate the area of the figure.
3. What is the area of one of the triangles? Write a brief description in your notebook of how you arrived at the formula and include a sketch.



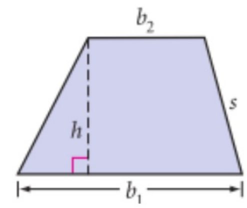
Triangle Area Conjecture

The area of a triangle is given by the formula $A = \frac{1}{2} b \cdot h$, where A is the area, b is the length of the base, and h is the height of the triangle.

IWBAT derive formulas for the areas of triangles, trapezoids, and kites and apply these formulas to solve problems.

Area of triangles, trapezoids, & kites

1. Construct any trapezoid and an altitude perpendicular to its bases. Label the trapezoid as shown.
2. Cut out the trapezoid. Make and label a copy.
3. Arrange the two trapezoids to form a figure for which you already have an area formula. What type of polygon is this? What is its area? What is the area of one trapezoid? State a conjecture.



$$A = \left(\frac{b_1 + b_2}{2}\right) \cdot h$$

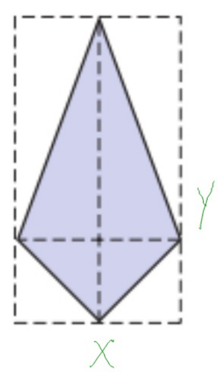
Trapezoid Area Conjecture

The area of a trapezoid is given by the formula __________, where A is the area, b1 and b2 are the lengths of the two bases, and h is the height of the trapezoid.

IWBAT derive formulas for the areas of triangles, trapezoids, and kites and apply these formulas to solve problems.

Area of triangles, trapezoids, & kites

- Can you rearrange a kite into shapes for which you already have the area formula? Do you recall some of the properties of a kite?
- Create and carry out your own investigation to discover a formula for the area of a kite. Discuss your results with your group. State a conjecture.



$A = \frac{x}{2} \cdot y$ o $\frac{x \cdot y}{2}$ o $\frac{1}{2} x \cdot y$

Kite Area Conjecture

The area of a kite is given by the formula __________.

IWBAT derive formulas for the areas of triangles, trapezoids, and kites and apply these formulas to solve problems.

Area of triangles, trapezoids, & kites

Pp. 418-419 #1-12, 19

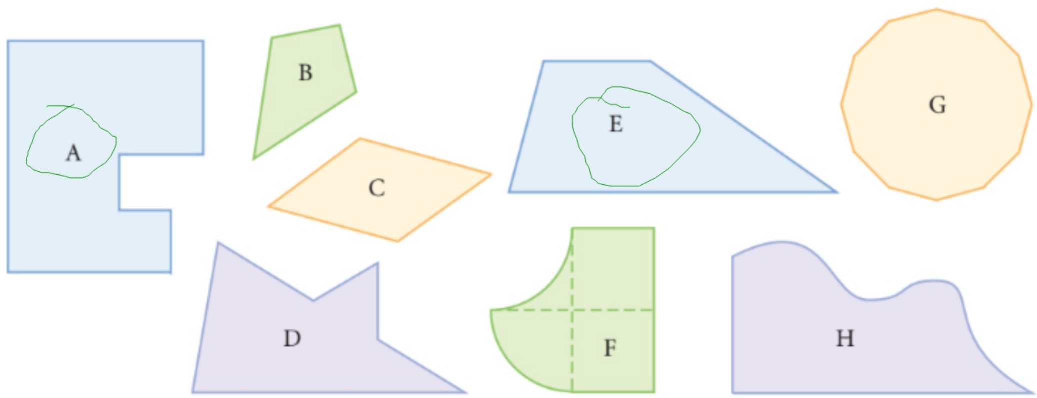
IWBAT derive formulas for the areas of triangles, trapezoids, and kites and apply these formulas to solve problems.

Area problems 05/11/18

IWBAT practice measuring, practice estimating, and solve area application problems using various problem-solving strategies.

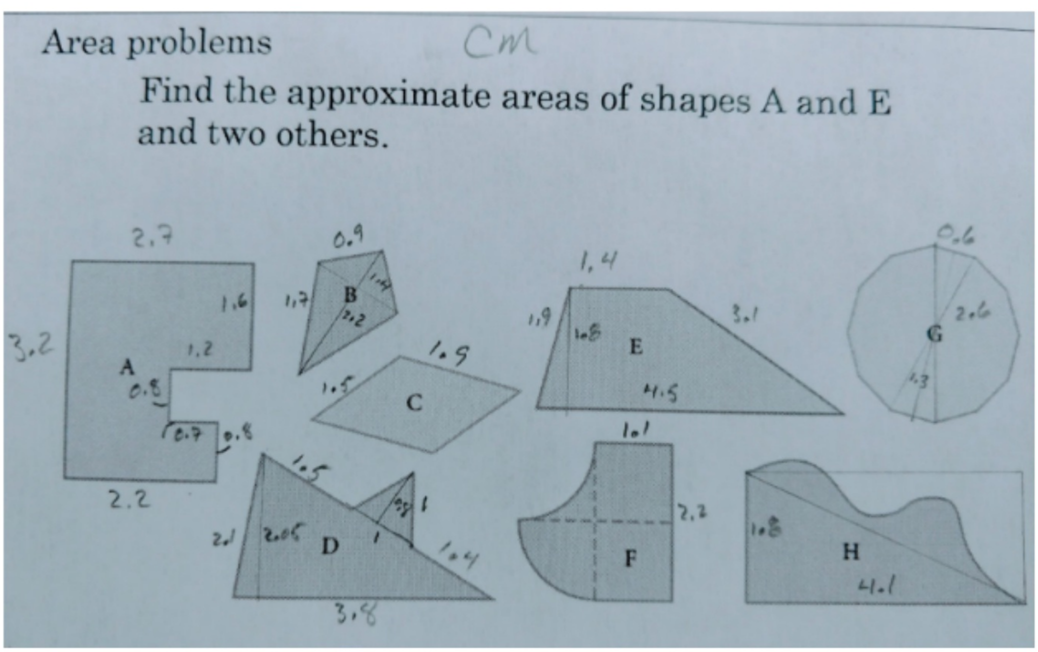
Area problems

Find the approximate areas of shapes A and E
and two others.



IWBAT practice measuring, practice estimating, and solve area application problems using various problem-solving strategies.

Area problems



IWBAT practice measuring, practice estimating, and solve area application problems using various problem-solving strategies.

Area problems

Pp. 423-424 #1, 4, 5, 7, 8

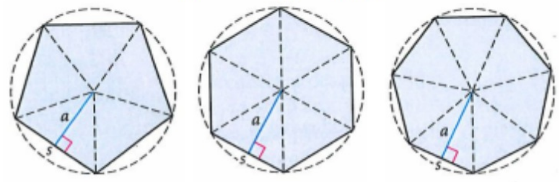
IWBAT practice measuring, practice estimating, and solve area application problems using various problem-solving strategies.

Areas of regular polygons

05/12/18

IWBAT derive the formula for the area of a regular polygon and apply the formula to solve problems.

Areas of regular polygons



Regular pentagon — Regular hexagon — Regular heptagon

Once a circle is circumscribed about the polygon and the center of the circle located, regular polygons can be subdivided into one isosceles triangle per side with their height measured by the apothem of the polygon.

Consider a polygon of side length s and apothem length a. $A = \frac{s \cdot a}{2}$

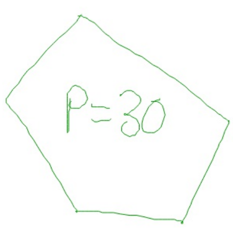
1. What is the area of one isosceles triangle in terms of a and s?
2. What is the area of the above pentagon? $A = 5(s \cdot a/2)$
3. Repeat steps 1 & 2 and complete the table then compose a conjecture for this situation.

Number of sides	5	6	7	8	9	10	...	12	...	n
Area of regular polygon	$5\frac{s \cdot a}{2}$	$6\frac{sa}{2}$	$7\frac{sa}{2}$							$n\frac{sa}{2}$

Areas of regular polygons

Regular Polygon Area Conjecture

The area of a regular polygon is given by the formula $A = n \cdot s \cdot a/2$, where A is area, a is the apothem, s is the length of each side, and n is the number of sides. The length of each side times the number of sides is the perimeter, P, so $sn = P$. Thus you an also write the formula for area as $A = \frac{a}{2} P$.



Pp. 427-428 #1-8, 13

IWBAT derive the formula for the area of a regular polygon and apply the formula to solve problems.

Areas of circles

05/16/18

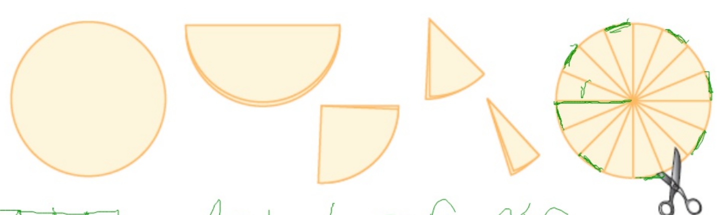
IWBAT derive the formula for the area of a circle and apply the formula to solve problems.

Areas of circles

Circles do not have straight sides like polygons do. However, the area of a circle can be rearranged.

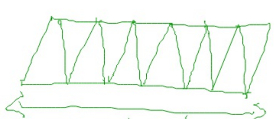
1. Use your compass to make a large circle. Cut out the circular region.
2. Fold the circular region in half. Fold it in half a second time, then a third time and a fourth time. Unfold your circle and cut it along the folds into 16 wedges.
3. 3 Arrange the wedges in a row, alternating the tips up and down to form a shape that resembles a parallelogram.

$C = \pi D$
$= \pi 2r$



$A = \pi r^2$

$h \; r$



$A = b \cdot h = r \cdot \pi r = \pi r^2$

$b = \frac{1}{2}C = \frac{1}{2}(2\pi r) = 1\pi r$

Circle Area Conjecture

The area of a circle is given by the formula $A = \pi r^2$, where A is the area and r is the radius of the circle.

IWBAT derive the formula for the area of a circle and apply the formula to solve problems.

Areas of circles

P. 435 #1-10, 11

IWBAT derive the formula for the area of a circle and apply the formula to solve problems.

Sections of circles

05/17/18

IWBAT discover formulas and methods for calculating the area of annuluses, sectors and segments of circles.

Sections of circles

Circles can be cut in several ways. Along two radii like a slice of pizza is a sector. Cutting along a chord gives you a segment. Cutting out a concentric circle gives you an annulus.


Sector of a circle

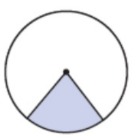

Segment of a circle


Annulus

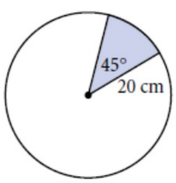
Each of these has its own way of finding the area.

IWBAT discover formulas and methods for calculating the area of annuluses, sectors and segments of circles.

Sections of circles


Sector of a circle

Find the area of the shaded sector.



$\frac{a}{360}$ ·  = 

$$\left(\frac{a}{360}\right) \cdot \pi r^2 = A_{\text{sector}}$$

$$\frac{45^\circ}{360^\circ}(20\text{ cm})^2\pi$$

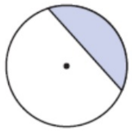
$$\frac{1}{8}(20^2)\text{cm}^2\pi$$

$$\frac{400}{8}\pi\text{ cm}^2$$

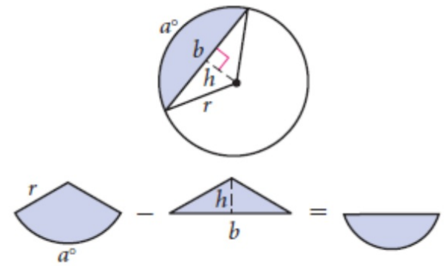
$$50\pi\text{ cm}^2$$

IWBAT discover formulas and methods for calculating the area of annuluses, sectors and segments of circles.

Sections of circles

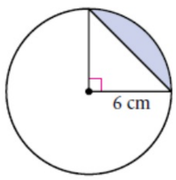


Segment of a circle



$$\left(\frac{a}{360}\right) \cdot \pi r^2 - \frac{1}{2}bh = A_{segment}$$

Find the area of the shaded segment.



$\frac{1}{4}(6cm)^2\pi - \frac{1}{2}(6cm)(6cm)$

$\frac{36}{4}\pi\ cm^2 - 18\ cm^2$

$9\pi\ cm^2 - 18cm^2$

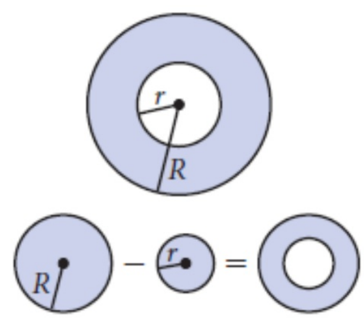
$(9\pi - 18)cm^2$

$\approx 10.27\ cm^2$

IWBAT discover formulas and methods for calculating the area of annuluses, sectors and segments of circles.

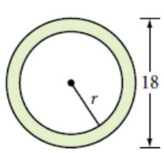
Sections of circles

Annulus



$$\pi R^2 - \pi r^2 = A_{annulus}$$

The shaded area is 32π cm^2.
Find r.



$18^2\pi - r^2\pi = 32\pi\ cm^2$

$324\pi - r^2\pi = 32\pi$

$-324\pi \qquad -324\pi$

$\frac{\cancel{-}r^2\cancel{\pi}}{\cancel{-}\cancel{\pi}} = \frac{\cancel{-}292\cancel{\pi}}{\cancel{-}\cancel{\pi}}$

$\sqrt{r^2} = \sqrt{292}$

$r \approx 17.09\ cm$

IWBAT discover formulas and methods for calculating the area of annuluses, sectors and segments of circles.

Sections of circles

P. 439 #1-9, 12

IWBAT discover formulas and methods for calculating the area of annuluses, sectors and segments of circles.

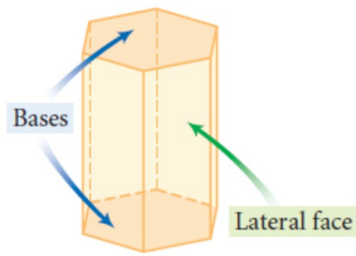
Surface Area

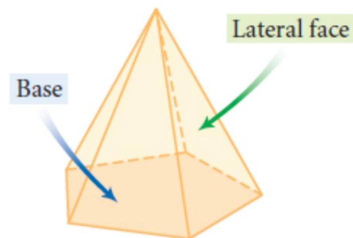
05/18/18

IWBAT discover methods for finding the surfae area of solids and review terminology for solids such as base and lateral face.

Surface Area

The surface area of each of these solids is the sum of the areas of all the faces or surfaces that enclose the solid. For prisms and pyramids, the faces include the solid's bases and its remaining lateral faces. In a prism, the bases are two congruent polygons and the lateral faces are rectangles or parallelograms. In a pyramid, the base can be any polygon and the lateral faces are triangles.





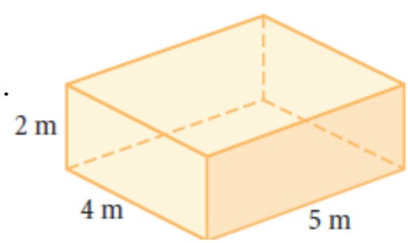
IWBAT discover methods for finding the surfae area of solids and review terminology for solids such as base and lateral face.

Surface Area

Steps for Finding Surface Area

1. Draw and label each face of the solid as if you had cut the solid apart along its edges and laid it flat. Label the dimensions.
2. Calculate the area of each face. If some faces are identical, you only need to find the area of one.
3. Find the total area of all the faces.

Find the surface area of the rectangular prism.



$2m \times 4m \times 2 = 16\,m^2$

$2m \times 5m \times 2 = 20\,m^2$

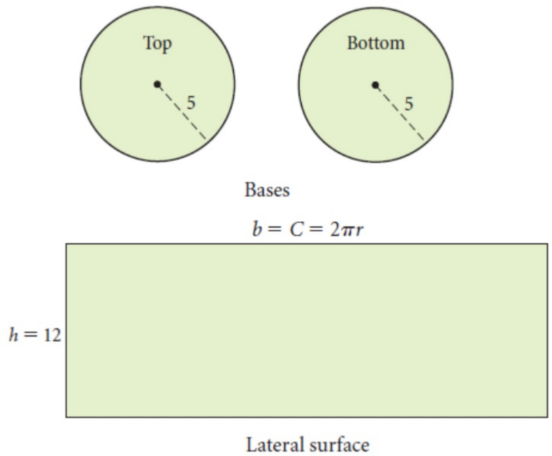
$4m \times 5m \times 2 = 40\,m^2\ +$

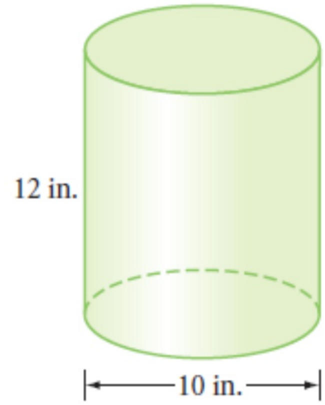
$76\,m^2$

IWBAT discover methods for finding the surfae area of solids and review terminology for solids such as base and lateral face.

Surface Area

Find the surface area of the cylinder.





2 circles $A = \pi r^2$

side $A = b \cdot h$

$h = 12$ in

$r = 5$ in

$b = 10\pi$ in

$\pi r^2 + b \cdot h$

$\pi 5^2 + 10\pi \cdot 12$

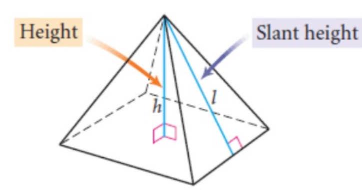
$25\pi + 120\pi$

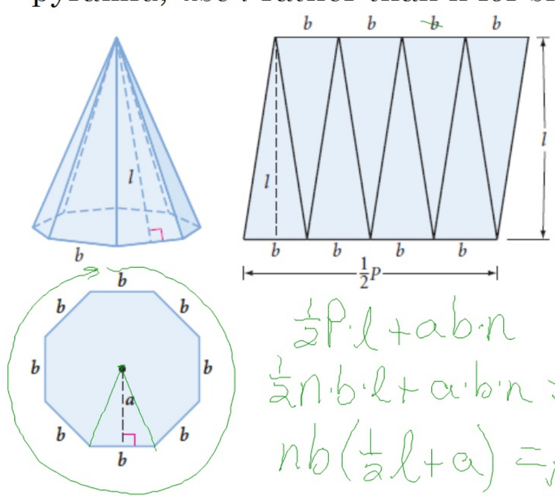
$A = 145\pi$ in^2

IWBAT discover methods for finding the surfae area of solids and review terminology for solids such as base and lateral face.

Surface Area

The surface area of a pyramid is the area of the base plus the areas of the triangular faces. The height of each triangular lateral face is called the slant height. To avoid confusing slant height with the height of the pyramid, use l rather than h for slant height.





What is the total lateral surface area for any pyramid with a regular n-gon base?

$\frac{1}{2}P \cdot l + a b \cdot n$

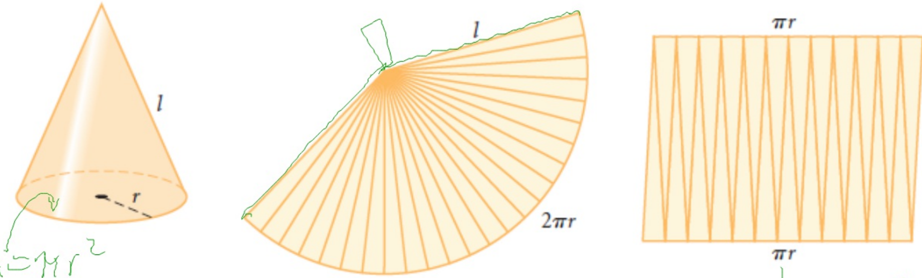
$\frac{1}{2} n \cdot b \cdot l + a \cdot b \cdot n = A_{n\text{-gon}}$

$nb(\frac{1}{2} l + a) = A_{n\text{-gon}}$

IWBAT discover methods for finding the surfae area of solids and review terminology for solids such as base and lateral face.

Surface Area

As the number of faces of a pyramid increases, it begins to look like a cone. You can think of the lateral surface as many small triangles, or as a sector of a circle.



h

$A = \pi r^2$

Write the formula for the surface area of a cone.

b

$A = b \cdot h$

$l \cdot \pi r$

$A_{cone} = \pi r^2 + l\pi r$

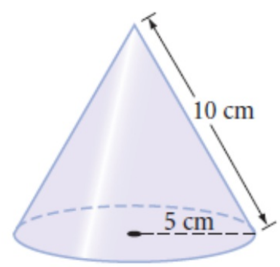
$\pi(r^2 + rl)$

$\pi r(r + l)$

IWBAT discover methods for finding the surfae area of solids and review terminology for solids such as base and lateral face.

Surface Area

Find the total surface area of the cone.



$A = \pi r^2 + \pi r l$

$A = \pi 5^2 + \pi 5 l$

$A = \pi 5^2 + \pi 5 \cdot 10$

$A = 25\pi + 50\pi$

$A = 75\pi \text{ cm}^2$

$A = \pi r(r + l)$

$A = 5\pi(5 + 10)$

$A = 5\pi(15)$

$A = 75\pi \text{ cm}^2$

IWBAT discover methods for finding the surfae area of solids and review terminology for solids such as base and lateral face.

Surface Area

P. 450 #1-9, 10, 11

IWBAT discover methods for finding the surfae area of solids and review terminology for solids such as base and lateral face.

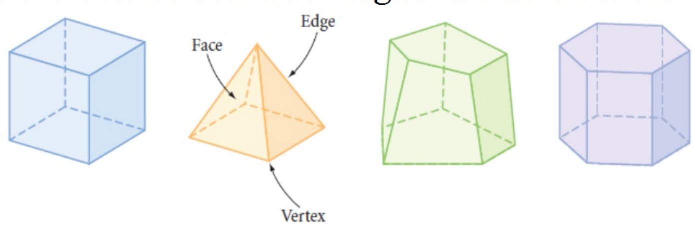
The Geometry of Solids

05/21/18

IWBAT learn the vocabulary of polyhedrons, particularly prisms and pyramids.

The Geometry of Solids

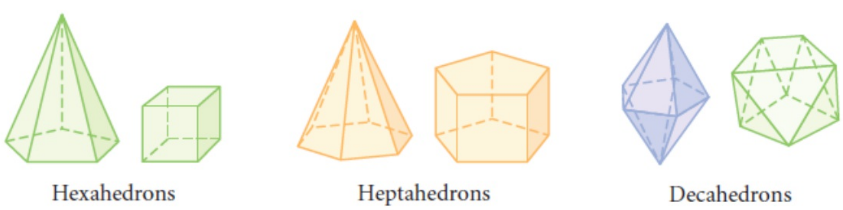
A solid formed by polygons that enclose a single region of space is called a polyhedron. The flat polygonal surfaces of a polyhedron are called its faces. Although a face of a polyhedron includes the polygon and its interior region, we identify the face by naming the polygon that encloses it. A segment where two faces intersect is called an edge. The point of intersection of three or more edges is called a vertex of the polyhedron.



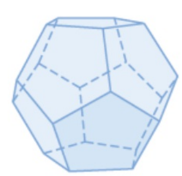
IWBAT learn the vocabulary of polyhedrons, particularly prisms and pyramids.

The Geometry of Solids

The prefixes for polyhedrons are the same as they are for polygons with one exception: A polyhedron with four faces is called a tetrahedron.



If each face of a polyhedron is enclosed by a regular polygon, and each face is congruent to the other faces, and the faces meet at each vertex in exactly the same way, then the polyhedron is called a regular polyhedron.

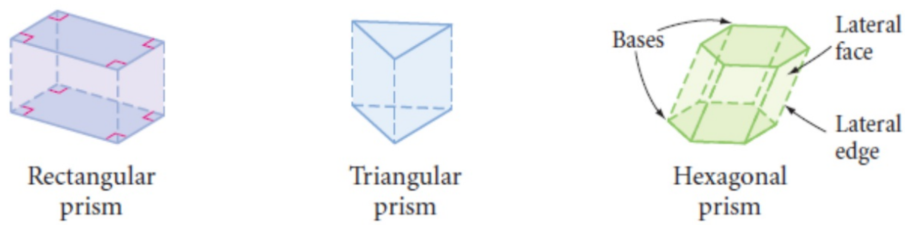


Regular dodecahedron

IWBAT learn the vocabulary of polyhedrons, particularly

The Geometry of Solids

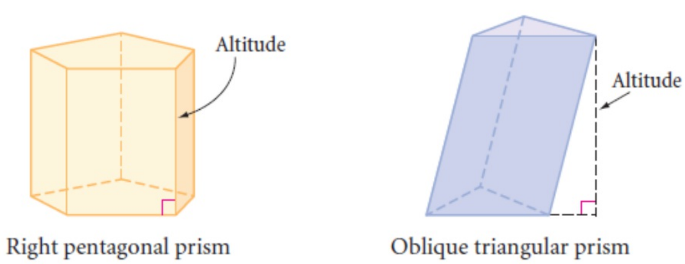
A prism is a special type of polyhedron, with two faces called bases, that are congruent, parallel polygons. The other faces of the polyhedron, called lateral faces, are parallelograms that connect the corresponding sides of the bases. The lateral faces meet to form the lateral edges. Prisms are classified by their bases. For example, a prism with triangular bases is a triangular prism, and a prism with hexagonal bases is a hexagonal prism.



IWBAT learn the vocabulary of polyhedrons, particularly

The Geometry of Solids

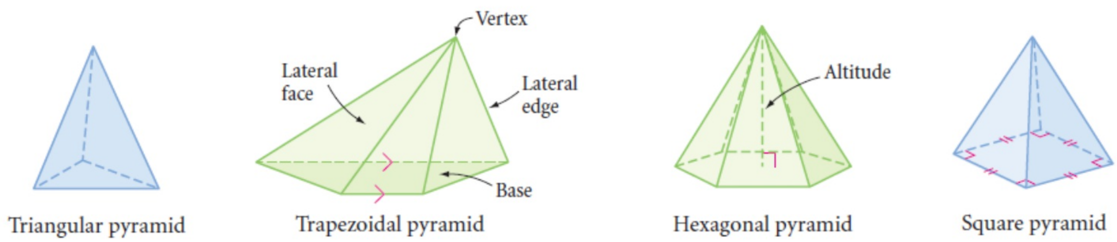
A prism whose lateral faces are rectangles is called a right prism. Its lateral edges are perpendicular to its bases. A prism that is not a right prism is called an oblique prism. The altitude of a prism is any perpendicular segment from one base to the plane of the other base. The length of an altitude is the height of the prism.



IWBAT learn the vocabulary of polyhedrons, particularly

The Geometry of Solids

A pyramid is another special type of polyhedron. Pyramids have only one base. Like a prism, the other faces are called the lateral faces, and they meet to form the lateral edges. The common vertex of the lateral faces is the vertex of the pyramid.

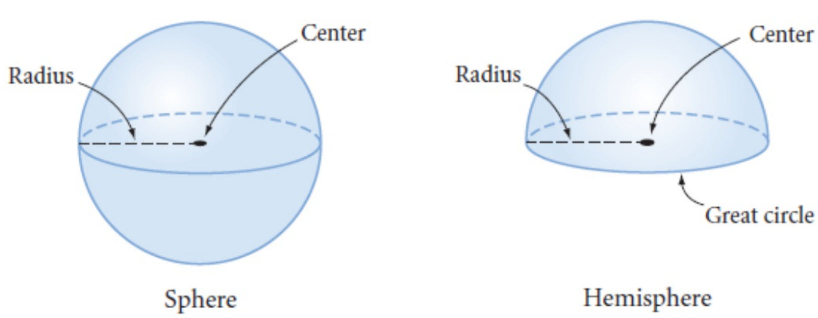


Like prisms, pyramids are also classified by their bases. The pyramids of Egypt are square pyramids because they have square bases.

The altitude of the pyramid is the perpendicular segment from its vertex to the plane of its base. The length of the altitude is the height of the pyramid.

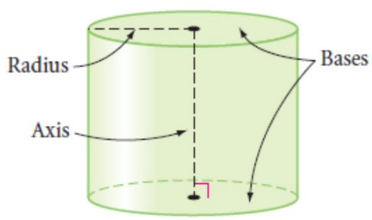
The Geometry of Solids

A sphere is the set of all points in space at a given distance from a given point. The given distance is called the radius of the sphere, and the given point is the center of the sphere. A hemisphere is half a sphere and its circular base. The circle that encloses the base of a hemisphere is called a great circle of the sphere. Every plane that passes through the center of a sphere determines a great circle. All the longitude lines on a globe of Earth are great circles. The equator is the only latitude line that is a great circle.

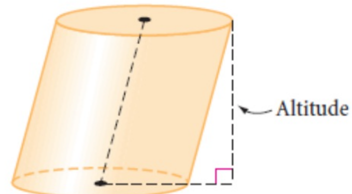


The Geometry of Solids

Like a prism, a cylinder has two bases that are both parallel and congruent. Instead of polygons, however, the bases of cylinders are circles. The radius of the cylinder is the radius of a base. The segment connecting the centers of the bases is called the axis of the cylinder. If the axis of a cylinder is perpendicular to the bases, then the cylinder is a right cylinder. A cylinder that is not a right cylinder is an oblique cylinder. The altitude of a cylinder is any perpendicular segment from the plane of one base to the plane of the other. The height of a cylinder is the length of an altitude.



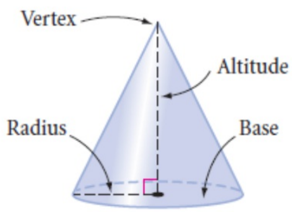
Right cylinder



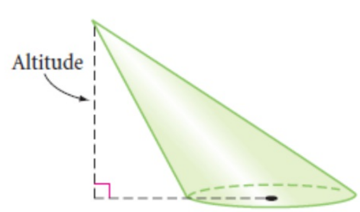
Oblique cylinder

The Geometry of Solids

A third type of solid with a curved surface is a cone. Like a pyramid, a cone has a base and a vertex. The base of a cone is a circle. The radius of a cone is the radius of the base. The vertex of a cone is the point that is the greatest perpendicular distance from the base. The altitude of a cone is the perpendicular segment from the vertex to the plane of the base. The length of the altitude is the height of a cone. If the line segment connecting the vertex of a cone with the center of its base is perpendicular to the base, then it is a right cone.



Right cone



Oblique cone

The Geometry of Solids

P. 509 #10-22

IWBAT learn the vocabulary of polyhedrons, particularly

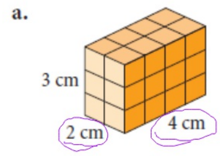
The Volume of Prisms & Cylinders 05/22/18

IWBAT discover formulas for finding the volumes of prisms and cylinders.

The Volume of Prisms & Cylinders

Find the volume of a right rectangular prism.

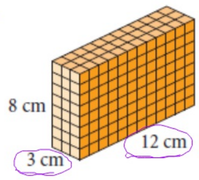
a.



$2 \times 3 \times 4$
cm cm cm

$24\ cm^3$

b.



$3 \times 12 \times 8$
cm cm cm

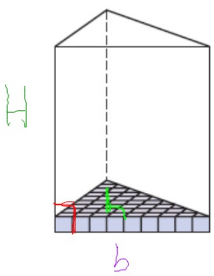
$288\ cm^3$

Area of the Base × Height

$B \cdot h = \text{Volume}$

$L \times w \times h = V$

Find the volume of a right triangular prism.



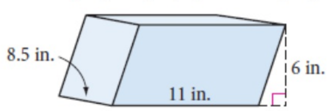
$\left(\frac{b \cdot h}{2}\right) H = \text{Volume}$

Area of the base × Height

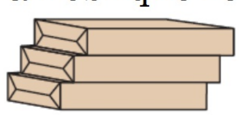
IWBAT discover formulas for finding the volumes of prisms and cylinders.

The Volume of Prisms & Cylinders

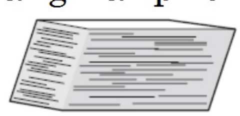
Find the volume of an oblique rectangular prism.



Oblique rectangular prism



Stacked reams of 8.5-by-11-inch paper



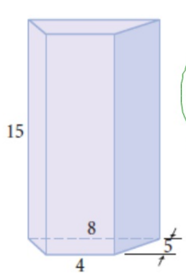
Stacked sheets of paper

Sheets of paper stacked straight

Area of the Base × Height

$\underbrace{11 \times 8.5}\times 6 = 561\ in^3$

Find the volume of a right trapezoidal prism.



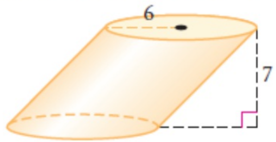
Base × Height

$\left(\frac{(8+4)}{2}\right) \times 5 \times 15 = 450\ u^3$

IWBAT discover formulas for finding the volumes of prisms and cylinders.

The Volume of Prisms & Cylinders

Find the volume of an oblique cylinder.



Base × Height

$\pi 6^2 \times 7 = 252\pi\ u^3$

P. 518 #7, 14

IWBAT discover formulas for finding the volumes of prisms and cylinders.

The Volume of Pyramids & Cones

05/23/18

IWBAT discover formulas for finding the volumes of pyramids and cones.

The Volume of Pyramids & Cones

You will need (per partnership):

- 1 sheet of paper
- masking tape
- funnel
- graduated cylinder
- tray
- sand
- ruler (metric)
- scissors (optional)

$\frac{\text{cone}}{\text{cylinder}}$

Pyramid-Cone Volume Conjecture

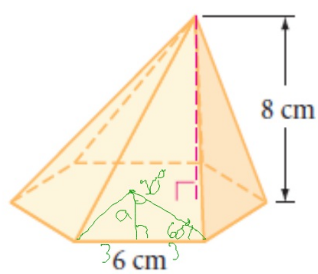
If B is the area of the base of a pyramid or a cone and H is the height of the solid, then the formula for the volume is V = $\frac{1}{3} B \cdot h$.

Steps:

1. Gather materials
2. Measure the diameter of the graduated cylinder
3. Create a cone with a mouth of the same diameter and any height out of one sheet of paper
4. Seal the cone with tape
5. Measure the cone height and write the mL measurement for the same height on the cone
6. Carefully fill the cone with sand
7. Carefully dump this sand into the graduated cylinder
8. Measure the mL filled with sand to the mL written on the cone.
9. Draw a conclusion as to the volume of a cone when compared to a cylinder of equal height.
10. Carefully clean up your materials.

The Volume of Pyramids & Cones

Find the volume of a regular hexagonal pyramid with a height of 8 cm. Each side of its base is 6 cm.

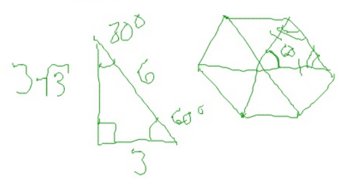


$V = Bh \cdot \frac{1}{3}$

$\frac{6 \cdot 6 \cdot 3\sqrt{3} \cdot 8}{2 \cdot 3}$

$V = 6 \cdot 3 \cdot 8\sqrt{3}$

$V = 144\sqrt{3}\ cm^3$



The Volume of Pyramids & Cones

A cone has a base radius of 3 in and a volume of 24π in^3. Find the height.

$V = \frac{1}{3}B \cdot h$

$24\pi = \frac{1}{3}\pi 9 \cdot h$

$\frac{24\pi}{3\pi} = \frac{3\pi \cdot h}{3\pi}$

$h = 8$ in

IWBAT discover formulas for finding the volumes of pyramids and cones.

The Volume of Pyramids & Cones

Pp. 524-525 #4, 5, 6, 9, 11

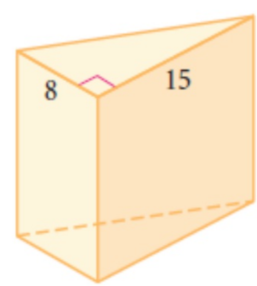
IWBAT discover formulas for finding the volumes of pyramids and cones.

Volume Problems 05/24/18

IWBAT solve applied problems involving polyhedrons, cones, cylinders, spheres, or hemispheres.

Volume Problems

The volume of this right triangular prism is 1440 cm^3. Find the height of the prism.



V = B*h

1440 = (15*8/2)*h

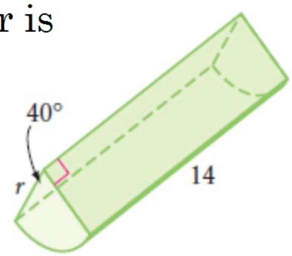
1440/60 = 60*h/60

24 cm = h

IWBAT solve applied problems involving polyhedrons, cones, cylinders, spheres, or hemispheres.

Volume Problems

The volume of this sector of a right cylinder is 2814 m^3. Find the radius of the base of the cylinder to the nearest m.



$$V = B*h$$
$$2814 = (1/9)(\pi r^2)*14$$
$$9*2814 = \pi r^2*14$$
$$25326 = \pi r^2 * 14$$
$$25326/14 = \pi r^2$$
$$1809 = \pi r^2$$
$$1809/\pi = r^2$$
$$\text{sqrt}(1809/\pi) = r$$
$$r = 24 \text{ m}$$

IWBAT solve applied problems involving polyhedrons, cones, cylinders, spheres, or hemispheres.

Volume Problems

Pp. 532-533 #1, 2, 3, 6, 10, 11

IWBAT solve applied problems involving polyhedrons, cones, cylinders, spheres, or hemispheres.

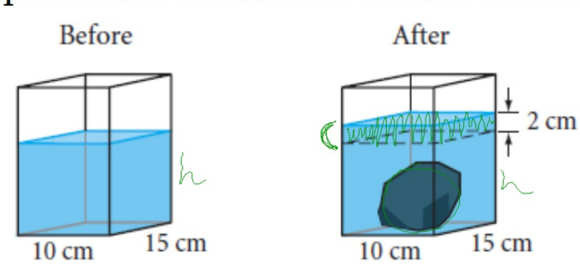
Density & Displacement

05/25/18

IWBAT apply volume formulas and find volumes of irregularly shaped solids through displacement.

Density & Displacement

Mary Jo wants to find the volume of an irregularly shaped rock. She puts some water into a rectangular prism with a base that measures 10 cm by 15 cm.When the rock is put into the container, Mary Jo notices that the water level rises 2 cm because the rock displaces its volume of water. What is the volume of the rock?



$B = 10 \times 15 = 150\ cm^2$

$V = B \cdot h$

$V = 150\ cm^2 \cdot 2\ cm$

$V = 300\ cm^3$

IWBAT apply volume formulas and find volumes of irregularly shaped solids through displacement.

Density & Displacement

A clump of metal weighing 351.4 grams is dropped into a cylindrical container, causing the water level to rise 1.1 cm. The radius of the base of the container is 3.0 cm.What is the density of the metal? Given the table, and assuming the metal is pure, what is the metal?

$D = \frac{\text{Mass}}{\text{Volume}}$ $\frac{g}{cm^3}$

Metal	Density	Metal	Density
Al Aluminum	2.81 g/cm³	Nickel Ni	8.89 g/cm³
Cu Copper	8.97 g/cm³	Platinum Pt	21.40 g/cm³
Au Gold	19.30 g/cm³	Potassium K	0.86 g/cm³
Pb Lead	11.30 g/cm³	Silver Ag	10.50 g/cm³
Li Lithium	0.54 g/cm³	Sodium Na	0.97 g/cm³

$V = (\pi 3^2 \cdot 1.1)\ cm^3$

$V = 9.9\pi\ cm^3$

$D = \frac{351.4\ g}{9.9\pi\ cm^3} = 11.30\ g/cm^3$

Pb

IWBAT apply volume formulas and find volumes of irregularly shaped solids through displacement.

Density & Displacement

8) $\underset{L}{35} \times \underset{W}{50} \times \underset{h}{30}$

ice in water

$\frac{7}{8}$ 4cm

Pp. 536-537 #3, 6, 8

$\frac{7}{8}V = B \cdot h$

$\frac{7}{8}V = 35 \times 50 \times 4$

$\frac{7}{8}V = 7000$

$V = 8000\ cm^3$

IWBAT apply volume formulas and find volumes of irregularly shaped solids through displacement.